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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,267	11/14/2001	Burkhard Standke	209350US0	6970

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EXAMINER

ROBERTSON, JEFFREY

ART UNIT PAPER NUMBER

1712

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,267

Applicant(s)

STANDKE ET AL. *ARC*

Examiner

Jeffrey B. Robertson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-18 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Applicant sets forth cyclic or net-like structures in the specification is on page 5, lines 17-21, which refers to the structures as having an average degree of oligomerization of 2-30. The cyclic and net-like structures are referred to as organoalkoxysiloxanes of formula I. However, the structure of formula I is *necessarily* linear in that the substituents R, R', and R" as defined in the specification on page 5, line 1-4 are all *monovalent* substituents. Thus, formula I does not allow for a cyclic or net-like product.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 10-18 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claims 10, and 14-18, it is noted that formula I only supports linear organoalkoxysiloxanes, and not net-like or cyclic siloxanes. The only reference to cyclic or net-like structures in the specification is on page 5, lines 17-21, which refers to the structures as having an average degree of oligomerization of 2-30. The cyclic and net-

like structures are referred to as organoalkoxysiloxanes of formula I. However, the structure of formula I is *necessarily* linear in that the substituents R, R', and R" as defined in claim 1 and in the specification on page 5, line 1-4 are all *monovalent* substituents. Thus, formula I does not allow for a cyclic or net-like product. It is noted that in the process as claimed in claim 1, the initial organotrichlorosilane and tetrachlorosilanes could produce cyclic and/or net-like structures. In the process set forth in claim 1, the crude organoalkoxysiloxane is transferred to reaction-distillation column where volatile constituents are withdrawn out the top and where the organoalkoxysiloxane product is withdrawn as a bottom product. Although cyclic and/or net-like structures may be formed, these structures would not conform to formula I.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-10, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. (U.S. Patent No. 4,506,087).

For claims 1, 10, and 15-18, in column 1, line 59 through column 2, line 8, Fischer teaches a continuous process for producing oligomeric alkoxysilanes through the reaction of chlorosilanes with alcohols and water. In column 2, line 60 through column 3, line 50, Fischer teaches the process by which the oligomeric alkoxysilanes

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are made. Here, Fischer teaches that the alcohol, water, and chlorosilane are mixed into a reactor. The temperature of the reactor is between 20°C and 80°C, which is within the temperature range preferred by applicant. Fischer teaches that the HCl produced in the reaction is released through a heat exchanger, removed from the system. For claims 1 and 7, Fischer also discloses that the raw product is transferred to the top of a column (Figure), and that the pure product is removed from the receiver, the bottom of the column. Fischer teaches that the column temperature is higher than the boiling point of the alcohol and is distilled off. In Example 2, column 4, lines 10-27, Fischer teaches that the column temperature is 160°C, which is within the range set forth by applicant.

For claim 2, in column 2, line 24, Fischer teaches that isobutyltrichlorosilane may be used as a starting product. For claim 3, in column 2, lines 28-35, Fischer teaches that methanol or ethanol may be used as the alcohol.

For claim 9, in column 2, lines 62-67, Fischer teaches that the alcohol that accumulates at the top of the column is fed into the first stage of the reaction process.

As noted above, Fischer teaches that isobutylchlorosilane is a useful silane, and useful alcohols are methanol and ethanol. Fischer teaches in the Examples, columns 3-4, that both methanol and ethanol can be used. The use of the isobutylchlorosilane combined with the alcohol as either methanol or ethanol, leads to products that have R=isobutyl, and R'= to methanol or ethanol, depending on the alcohol used. Even though, Fischer does not teach an example with isobutylchlorosilane, because it is a specifically named silane in a list of eight, it is anticipated as a silane that is used in the

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production of oligomeric alkoxysilanes, as taught in Example 2, column 4, lines 10-27. A genus does not always anticipate a claim to a species within the genus. However, when the species is clearly named, the species is anticipated no matter how many other species are additionally named. Ex parte A, 17 USPQ 2d 1716 (Bd. Pat. App. & Inter. 1990) See also In re Sivaramakrishnan, 673 F.2d 1383, 213 USPQ 441 (CCPA 1982). It is also noted that because Fischer teaches that the products are oligomeric, $n+m$ is greater than or equal to two.

For claims 1, 4, 8, 10, and 15-18, Fischer does not expressly teach the ratio of silane to alcohol to water claimed by applicant in claims 1, 4, and 8 for organotrichlorosilane. Fischer also does not teach the ratio of alcohol that is supplied to the lower section of the reaction-distillation column in the second stage of the process. However, as noted by Fischer in column 1, line 64 through column 2, line 5, the selection of these amounts depends on the desired oligomeric alkoxysilane produced. Applicant does not show any criticality to these ratios. Therefore, these ratios are result effective variables, which would have been determined by one of ordinary skill in the art. A result effective variable is determined according to the desired properties of the resulting composition and would be obvious to one of ordinary skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

For claims 1 and 5, Fischer does not expressly teach the dwell time of the components in the first process stage. However, this dwell time would also be a result effective variable depending on the degree of hydrolysis and/or condensation desired in the resulting organoalkoxysiloxane. Applicant has shown no criticality to the dwell times

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set forth in these claims. A result effective variable is determined according to the desired properties of the resulting composition and would be obvious to one of ordinary skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. (U.S. Patent No. 4,506,087) as applied to claims 1 and 10 above, and further in view of Brennan et al. (U.S. Patent No. 3,668,180).

For claims 1 and 10, Fischer et al. renders those claims obvious as detailed above. Fischer fails to teach a method of treating or coating using the mixture of claim 10.

For claims 11, 12, and 14, Brennan et al. teaches a method of producing organoalkoxysiloxanes in column 1, lines 59-75. In column 4, line 67 through column 5, line 10, Brennan et al. teaches that the organoalkoxysiloxanes can be used to treat concrete to provide water repellency.

Fischer and Brennan are analogous art in that they both teach the synthesis of organoalkoxysiloxanes. It would have been obvious to use the organoalkoxysiloxanes produced by Fischer as treating compositions as set forth by Brennan. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

7. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. (U.S. Patent No. 4,506,087) as applied to claims 1 and 10 above, and further in view of Stanke et al. (U.S. Patent No. 5,679,147).

For claims 1 and 10, Fischer et al. renders those claims obvious as detailed above. Fischer fails to teach a method of improving rheological properties of dispersions and emulsions using the mixture of claim 10.

In column 1, lines 1-15, and 60-64, Standke teaches that alkoxysilanes can be used to improve rheological properties of dispersions and emulsions. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the organoalkoxysiloxanes as produced by Fischer to improve the rheological properties of dispersions and emulsions. As evidenced by Standke, it is well known in the art that, silicon containing alkoxy groups are useful for this purpose. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)

Allowable Subject Matter

8. Claim 6 would be allowable if rewritten to overcome the claim objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. For claim 6, Fischer fails to teach or suggest that the crude product is passed through a preheater before entering the reaction-distillation column.

Response to Arguments

9. Applicant's arguments filed 4/11/03 have been fully considered but they are not persuasive. Applicant argues that since there is no express teaching of the ratios claimed by applicant or the dwell time in the Fischer et al. reference, that this is

significant because these are important variables in developing the process claimed by applicant. Applicant also argues that Fischer defines water as an optional component, whereas in the instant claims it is present in a defined amount. Applicant also argues that the ratios and dwell times cannot just be summarily dismissed as result effective variables and that the limitations have only been realized as a consequence of careful investigation by applicant.

Applicant does not deny that the ratios and dwell times are result effective variables in the sense that these variables affect the organoalkoxysiloxanes produced. Applicant has failed to present any evidence to show the criticality of the ratios and dwell times. While it may be true that applicant has engaged in careful investigation to determine the ratios and dwell times of the claimed process, there is nothing in the record to suggest that this would amount to any more than the optimization of these variables. Absent a showing of criticality, the ranges of the ratios and dwell times set forth would have been obvious as set forth above. See In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.)

In addition, although Fischer refers to water as an optional component, it is clearly suggested in column 2, lines 2-5, that water is added in an amount corresponding to the desired oligomeric alkoxysilane. Also, the examiner has not "summarily dismissed" the ratios and dwell times. The examiner has given specific

rationale for the varying of the ratios, pointing to the above identified passage from Fischer, and the dwell times, relating to the desired degree of hydrolysis and condensation. Therefore the rejection is continued.

Regarding applicant's comments on the rejection of claims 11, 12, and 14 over Fischer in view of Brennan, and the rejection of claim 13 over Fischer in view of Standke, because the rejection over Fischer is continued as explained above, these rejections are also continued.

Last regarding the rejection made under 35 U.S.C. §112, 2nd paragraph, the examiner has clarified this rejection above, and the rejection is continued. It is noted that the new objection to the specification is based on the same rationale as the rejection under 35 U.S.C. § 112, 2nd paragraph as the same language is in the specification.

Conclusion

10. This rejection is not made final due to the new objection to the specification as explained above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey B. Robertson whose telephone number is (703) 306-5929. The examiner can normally be reached on Mon-Fri 7:00-3:00.

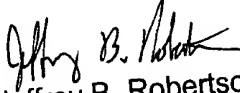
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Jeffrey B. Robertson
Primary Examiner
Art Unit 1712

JBR
June 18, 2003